

## A-1 Urban Water Conservation Grant Application Cover Sheet

1. Applicant (Organization or affiliation): West San Bernardino County Water District
2. Project Title: Water Loss Analysis & System Rehabilitation
3. Person authorized to sign and submit proposal:
- |                        |  |
|------------------------|--|
| <b>Name, Title</b>     | <u>Anthony Araiza, General Manager</u>   |
| <b>Mailing address</b> | <u>PO Box 920, Rialto, Ca 92377-0920</u> |
| <b>Telephone</b>       | <u>(909) 875-1804</u>                    |
| <b>Fax</b>             | <u>(909) 875-7284</u>                    |
| <b>E-mail</b>          | <u>butch@wsbcwd.org</u>                  |
4. Contact person (if different):
- |                        |                      |
|------------------------|----------------------|
| <b>Name, Title</b>     | <u>Same as above</u> |
| <b>Mailing address</b> | <u></u>              |
| <b>Telephone</b>       | <u></u>              |
| <b>Fax</b>             | <u></u>              |
| <b>E-mail</b>          | <u></u>              |
5. Funds requested (dollar amount): \$ 850,000
6. Applicant funds pledged (local cost share) (dollar amount): \$ 850,000
7. Total project costs (dollar amount): \$1,700,000
8. Estimated net water savings (acre-feet/year): 1,187
- Estimated total amount of water to be saved (acre-feet): 11,870
- Over 10 years
- Benefit/cost ratio of project for applicant: 2.79:1
- Estimated \$/acre-feet of water to be saved: \$ 348.80
9. Project life (month/year to month/year): 10/03 – 9/06
10. State Assembly District where the project is to be conducted: 62 & 63
11. State Senate District where the project is to be conducted: 32
12. Congressional District(s) where the project is to be conducted: 42 & 43
13. County where the project is to be conducted: San Bernardino and Riverside
14. Do the actions in this application involve physical changes in land use, or potential future changes in land use?
- (a) Yes
- (b) No XX

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**A-2 Application Signature Page**

By signing below, the official declares the following:

The truthfulness of all representations in the application;

The individual signing the form is authorized to submit the application on behalf of the applicant;

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the application on behalf of the applicant; and

The applicant will comply with all terms and conditions identified in this Application Package if selected for funding.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name and title

\_\_\_\_\_  
Date

**\*\*\*Insert signature page**

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### **A-3 Application Checklist**

Complete this checklist to confirm all sections of this application package have been completed.

#### **Part A: Project Description, Organizational, Financial and Legal Information**

- ☒ A-1 Urban Water Conservation Grant Application Cover Sheet
- ☒ A-2 Application Signature Page
- ☒ A-3 Application Checklist
- ☒ A-4 Description of project
- ☒ A-5 Maps
- ☒ A-6 Statement of work, schedule
- ☒ A-7 Monitoring and evaluation
- ☒ A-8 Qualification of applicant and cooperators
- ☒ A-9 Innovation
- ☒ A-10 Agency authority
- ☒ A-11 Operation and maintenance (O&M)

#### **Part B: Engineering and Hydrologic Feasibility (construction projects only)**

- ☒ B-1 Certification statement
- ☐ B-2 Project reports and previous studies
- ☒ B-3 Preliminary project plans and specifications
- ☒ B-4 Construction inspection plan

#### **Part C: Plan for Environmental Documentation and Permitting**

- ☒ C-1 CEQA/NEPA
- ☒ C-2 Permits, easements, licenses, acquisitions, and certifications
- ☒ C-3 Local land use plans
- ☒ C-4 Applicable legal requirements

#### **Part D: Need for Project and Community Involvement**

- ☒ D-1 Need for project
- ☒ D-2 Outreach, community involvement, support, opposition

#### **Part E: Water Use Efficiency Improvements and Other Benefits**

- ☒ E-1 Water use efficiency improvements
- ☒ E-2 Other project benefits

#### **Part F: Economic Justification, Benefits to Costs Analysis**

- ☒ F-1 Net water savings
- ☒ F-2 Project budget and budget justification
- ☒ F-3 Economic efficiency

#### **Appendix: Benefit/Cost Analysis Tables**

- ☒ Tables 1; 2; 3; 4a, 4b, 4c, 4d; and 5

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**A-4 Description of Project**

The West San Bernardino County Water District (“District”) receives 58 percent (11,416 AF) of its water supply from ground water wells, 28% (5,445 AF) from local surface water, and 14% (2,836) from supplemental water purchases.

The proposed Water Loss Analysis and System Rehabilitation Project will be completed over a three year period. Initially approximately 10% or 36 miles of water service lines and mains in the District will be surveyed, water meters that need to be replaced will be identified, and then the District will rehabilitate the infrastructure as specified in the Analysis. The Water Loss Analysis will also include the creation of an infrastructure rehabilitation program that establishes a maintenance and replacement schedule for service lines, mains, and water and wellhead meters. It is anticipated that the initial survey will take no more than six months to complete, at which time the District will begin rehabilitating the infrastructure identified in the Analysis Report. The District will also offer a rebate program to consumers who replace existing toilets with low-flush toilets, as well as low flow shower heads and reduced water usage washing machines to encourage users to participate in the District’s water conservation program.

The service lines and mains consist of galvanized, copper, and P.E. plastic. The mains are cast iron, D & W steel, and asbestos cement (ac) pipe. Some of the mains are as old as 50 years. The District maintains detailed leak records, and the proposed project will survey the lines with the worst leak records. It is anticipated that the survey will locate approximately 300 leaks that will be repaired by District or contract staff. Thirty-three (33) percent of the identified lines will be rehabilitated during the first year and each subsequent year, until all of the specified lines have been repaired.

The project will also include a Water Conservation Outreach Program whereby the District will promote water conservation twice a year by community meetings mailers or flyers. The District will hire a public relations consultant to assist in this program.

Nearly half of the District’s water meters are over 20 years old, and another 38% are 10 to 20 years old. Over the three year period, the District proposes to replace 447 of the domestic meters that have been in service for more than 20 years. The meter replacements will be performed by District field personnel, and/or by contract.

It is anticipated that 25% or 202 AF of our annual water loss of 808 AF will be saved by implementing the meter and service lateral replacement. It is estimated that conservation will reduce water consumption by another 5% or 985 AF/yr for a total of 1,187 AF/yr or 11,870 for 10 years.

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**A-5 Maps**

See Appendix 1.

**A-6 Statement of Work, Schedule**

In the first six months the District will hire a consultant to perform the Water Loss Analysis that includes a survey of the service laterals that are leaking and meters that need to be replaced.

We will also start our public relations program, which will include notification to our customers that we will be offering rebates for low flush toilets and showerhead replacement.

In the first year the District anticipates a second notification of Public Awareness, and including but not limited to the following:

- Replace 356 service laterals
- Replace 149 residential and 12 commercial meters
- Rebuild and calibrate 6 wellhead meters
- Rebate 108 low flush toilets
- Exchange 548 low flow showerhead replacements

In year 2, continue Public Awareness notification. Analyze data and project progress, and including but not limited to the following:

- Replace another 356 service laterals
- Replace another 149 residential and 16 commercial meters
- Rebuild and calibrate another 6 wellhead meters
- Another 110 low flush toilets
- Another 550 low flow showerhead replacements

In year 3, continue Public Awareness notification. Analyze data and project progress, and including but not limited to the following:

- Replace another 356 service laterals
- Replace another 149 residential meters
- Rebuild and calibrate 16 wellhead meters
- Another 112 low flush toilets
- Another 552 low flow showerhead replacements

The District and or consultant will review progress yearly. Schedule may require adjustment depending on the outcome of the survey. Depending on contracting schedules and economies of scales quantities may be adjusted on yearly basis.

The time table and tasks represented in Figure 1 are estimates. The Water Loss Analysis Report to be completed by a consultant will provide detailed direction and deadlines by which the specified improvements are to be completed.

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**Figure 1**

<b>TASK</b>	<b>START DATE</b>	<b>END DATE</b>	<b>OBJECTIVE</b>	<b>PROJECTED QUARTERLY COST</b>	<b>TOTAL PROJECTED COST</b>
Water Loss Analysis	10/1/2003	3/30/2004	Find leaks in mains and services	\$4,167.00	\$50,000.00
Public Relations	3/30/2004	10/1/2006	6 releases of notifications and mailers	\$5,000.00	\$60,000.00
Replace leaky service laterals	1/1/2004	6/1/2006	Replace 1,058 leaking service laterals	\$111,339.00	\$1,336,068.00
Replace meters	1/1/2004	6/1/2006	Replace 447 residential meters	\$5,587.50	\$67,050.00
Replace meters	1/1/2004	1/1/2006	Replace 44 commercial compound meters	\$12,674.36	\$139,417.96
Rebuild wellhead meters	10/1/2004	10/1/2006	Rebuild and calibrate 44 wellhead meters	\$1,750.00	\$21,000.00
Rebate Program	3/30/2004	10/1/2006	Offer 330 \$50.00 rebates for low flush toilets	\$1,375.00	\$16,500.00
Showerhead Program	3/30/2004	10/1/2006	Exchange 1,650 low flow showerheads	\$825.00	\$9,900.00
<b>Total Project/Budget Cost</b>					<b>\$1,699,935.96</b>

#### **A-7 Monitoring and Evaluation**

Monitoring the project's success in achieving the goals and objectives during the three-year Water Loss Analysis and System Rehabilitation Project will be facilitated through the monthly reporting of water meter replacements, service line and main repairs and replacements, and the monitoring of the effects of these repairs semi-annually. The desired results of such actions on an annual basis are as follow: Achieving infrastructure rehabilitation objectives, capital costs versus increased revenues, the reduction of the District's reliance upon marginally contaminated well sources and State distribution water sources, and the level of participation by consumers in the District's rebate program.

Once the original survey and repairs are complete, the District will monitor and evaluate the system approximately every two years to insure the District is meeting or exceeding the water saving goals that have been established. The District's has established a goal of no more than 2% of the total water supply shall be lost.

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**A-8 Qualifications of the Applicant and Cooperators**

The project will be managed by the following District employees:

Anthony Araiza, General Manager -- Overall Project Management  
Leon Long, Assistant General Manager – Supervision of water loss analysis and  
infrastructure rehabilitation

Resumes are provided in Appendix 2.

External cooperators: None

**A-9 Innovation**

West San Bernardino County Water District's commitment to involving the public in their water conservation program is an innovative approach of combining customer service excellence and resource conservation. Through their commitment to working closely with the public and allowing public participation, the District will be able to foster a greater commitment to water conservation by providing multiply rebate programs to the District's consumers.

In addition to establishing an industry standard towards offering multiple ways for the public to help conserve common resources, the District will be installing the latest water meters available. These new generation meters are more accurate and require less time to gather meter readings; they use remote reading technology. This reading solution is specifically designed to provide utilities with an efficient, low-risk means of implementing remote meter reading schemes, without involving expensive infrastructure changes. The Route Star MVP module includes a completely self-contained radio communications link for water meters and is designed to be used with handheld data capture devices for walk-by meter reading applications. The key benefit of this type of remote reading technology is that the meter reader can gain access to 100% of the water meter's indexes without any need to intrude into customers' premises. It is also ideal for use in hard-to-read locations such as deep meter pits or hazardous areas. Furthermore, all the data can be acquired and transferred direct to the utility's billing system, which increases data collection speed and reduces reading mistakes.

The Route Star MVP module is exceptionally easy to install; it is a completely standalone device that is directly integrated on the meter's register and can accurately measure the flow rate, as well as the flow direction. The module also provides a number of advanced functions such as leakage detection, fixed date readings and back flow detection – which are powerful diagnostic aids for network management and enable extra services to be offered to end-users.

All data transmission to and from the module is accomplished over the license-free 433 MHz band. The transmission protocol employed by the Route Star MVP module is compliant with the low power radio communications standard defined by the FCC. Depending upon the

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environmental conditions and sensitivity of the remote reading system, the module has a communication range of up to 600 meters.

The unit is completely waterproof and can even be used in very severe environmental conditions such as under water or mud in flooded pits. The module uses specially-developed low-consumption circuitry and is powered by lithium batteries, providing an unequalled 15-year typical lifetime.

The District anticipates that it's Water Loss Analysis and System Rehabilitation Project will contribute significantly to water use efficiency regionally, as well as within the local service area. The West San Bernardino County Water District is located in an arid climate, and is regularly faced with drought conditions. The District's ability to implement a successful program towards achieving independence from needing to purchase water from Northern California, and additionally lessening the need for other water agencies in the Inland Empire Area to purchase such water to supplement their supplies will have significant benefits to not only the District and the Region, but the State as well.

**A-10 Agency Authority**

1. Anthony Araiza, the General Manager, has been authorized to submit an application and to enter into a funding contract with the State of California Department of Water Resources for the Urban Water Conservation Grant Program (See Appendix 3).
2. The District is a County Water District, a public agency of the State of California, organized and existing under the County Water District Law of the State of California (Division 12, Section 30,000 of the Water Code).
3. No, the applicant is not required to hold an election before entering into a funding contract with the State.
4. No, the funding agreement between the applicant and the State will not be subject to review and f/or approval by other government agencies.
5. No, there is no pending litigation that may impact the financial condition of the applicant, the operation of the water facilities, or its ability to complete the proposed project.

**A-11 Operations and Maintenance**

The District operates and maintains 16,490 service connections and 360 miles of distribution and transmission facilities (sizes 4" – 48"), 7 pump stations, 21 wells and 14 reservoirs with 70 mg of storage, including a 9.6 mgd Water Filtration Plant utilizing local surface and State Project Water. All maintenance and operations are provided by the District.



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The annual operations and maintenance costs of the proposed project are estimated in Tables 2 and 3 below.

Revenue source for operations and maintenance is the water fund.

**Table 1: Capital Costs**

	Capital Cost Category (a)	Cost (b)	Contingency Percent (c)	Contingency \$ (d) (bxc)	Subtotal (e) (b+d)
(a)	Land Purchase/Easement			0	0
(b)	Public Relations Program	54,545	10.00%	5,455	60,000
(c)	Meter Installation	60,955	10.00%	6,095	67,050
(d)	Wellhead & Commercial Meters	145,835	10.00%	14,583	160,418
(e)	Service Laterals	1,214,607	10.00%	121,461	1,336,068
(f)	Environmental Mitigation/Enhancement			0	0
(g)	Program Consultant and Project Analysis	45,455	10.00%	4,545	50,000
(h)	Project Legal/License Fees			0	0
(i)	Rebate Program	24,000	10.00%	2,400	26,400
(j)	Total (1) (a + ... + i)				1,699,936
(k)	Capital Recovery Factor: Use Table 6				0.0872
(l)	Annual Capital Costs (j x k)				148,234

**Table 2: Annual Operations and Maintenance Costs**

Administration (a)	Operations (b)	Maintenance (c)	Other (d)	Total (e)
0	0	0	0	***

\*\*\*O & M costs were added into the Capital Cost Budget, Table 1 in this section.

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**Table 3: Total Annual Costs**

<b>Annual Capital Costs (1)</b>  <b>(a)</b>	<b>Annual O&amp;M Costs (2)</b>  <b>(b)</b>	<b>Total Annual Costs</b>  <b>(c)</b> <b>(a+b)</b>
148,234	0	148,234

The operations and maintenance costs for the proposed improvements will result in a reduction in current costs due to increased efficiency and reduced repairs.

## ***Application Part B—Engineering and Hydrologic Feasibility***

### **B-1 Certification Statement**

I, \_\_\_\_\_, a California registered civil engineer, have reviewed the information presented in support of this application. Based on this information, and any other knowledge I have regarding the proposed project, I find that it can be designed, constructed, and operated to accomplish the purpose for which it is planned. There is a sufficient water supply for the project. The information I have reviewed to document this statement is included program budget and Tables 1-5.

\_\_\_\_\_  
(Original signature and stamp with expiration date)

## **B-2 Project Reports and Previous Studies**

The District's 2002 Water Rate Study indicated that the District's expenses are exceeding revenues by nearly 15%. 3.1 percent is the result of meters under reporting usage, and approximately 11 percent is the result of increased energy costs. In addition to this study, the District also maintains detailed records of service line and main repairs due to leaks and breaks. It is estimated that 1.0% or 197 acre feet of water is lost each year due to old and/or substandard pipes and services. Attached hereto under Appendix 4 is the District's 2002 Water Rate Study.

## **B-3 Preliminary Project Plans and Specifications**

Project Plans and Specifications will be minimal for this project because the District has detailed specifications for service and waterline replacement and installation of pipeline or meters. This project is strictly for the use of rehabilitating existing, antiquated infrastructure. See map under Appendix 1 for the project areas, and Appendix 5 for the meter and service line specifications).

## **B-4 Construction Inspection Plan**

The District will send out requests for proposals to qualified contractors for the meter replacement and water service laterals. The District has qualified Staff inspectors that will inspect on a daily basis, newly installed facilities to see that the specifications are being met. The inspectors will also maintain daily records such as total of service lines that will be replaced and record the conditions of the old materials removed. The District wants to utilize its own Staff and not pay a consultant in which money saved from this can be put back into the program.

# ***Application Part C—Plan for Completion of Environmental Documentation and Permitting Requirements***

## **C-1 California Environmental Quality Act and National Environmental Policy Act**

The proposed project is not subject to CEQA or NEPA because the repairs as specified will be to existing infrastructure pursuant to California Environmental Quality Act Articles 15301 and 15302. No new infrastructure will be constructed, and therefore, there will be no impacts as a result of this project.

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**C-2 Permits, Easements, Licenses, Acquisitions, and Certifications**

The District will not require easement licenses, acquisitions or certifications. However, we will be required to obtain street cut and excavation permits from the City of Rialto and the County of San Bernardino.

**C-3 Local Land Use Plans**

Local Land Use Plans are not relevant to this project because all of the proposed improvements are to existing infrastructure.

**C-4 Applicable Legal Requirements**

The project is a maintenance, replacement and rebate program in which we do not require any legal requirements.

## ***Application Part D- Need for Project and Community Involvement***

**D-1 Need for Project**

The West San Bernardino County Water District provides water to more than 57,000 customers, including schools, Emergency Medical Facilities, parks, and commercial and industrial business. The West San Bernardino County Water District has 21 active water wells within the Rialto-Colton, Chino, Lytle Creek, Bunker Hill, and North Riverside Basins; however, due to perchlorate contamination, 5 of the 21 wells have been taken out of service, to date, and potentially, an additional 4 may be contaminated in the near future as the perchlorate plume continues to migrate at a rate of 3 feet per day, as determined by the California Regional Water Control Board.

The West San Bernardino County Water District receives more than half of its water supply from well water sources, and during times of peak demand, purchases water from the CalFed System (2400 acre-feet July through March, on average). Southern California is continuing to experience drought conditions, and forecasts predict that the current drought will persist through yet another year. As the drought continues, and with having to shut down of five wells, due to the recent perchlorate contaminations, the West San Bernardino County is facing potential water shortages. As a result, it is critical that the District improve its distribution system and conserve water, or suffer the consequences of water rationing, significant rate increases, and drawing more water from the state distribution system. All of these factors combined jeopardize the region's ability to encourage new development, resulting in significant negative economic impacts to the communities served by the District.

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In addition to negatively impacting the communities of the Inland Empire Area, if conditions persist and/or worsen construction of the I-210 could be delayed.

Forty-four percent (44%) of the water meters currently used are more than 20 years old, and thirty-eight percent (38%) is ten to twenty years old. So of the District's 16,500 service connections, 14, 521 are in need of rehabilitation or replacement. The District does not currently have an annual meter replacement program; this system has never been rehabilitated, except for the replacement of completely inoperable meters. Several of the water meters are old and leaking, or are under reporting water usage because they are seriously undersized relative to the consumers' consumption. Many of the service lines are plastic, which are inferior and prone to leaking; and/or in poor condition due to their age; 342 breaks and leaks in service lines were reported last year. Minor repairs have been made as leaks are detected; however, these patch-type repairs do not address the inherent problems of an aged conveyance system.

West San Bernardino County Water District is committed to improving efficiency by developing a comprehensive assessment of the District's conveyance and storage systems, replacing substandard service lines and mains, and identifying and replacing old and/or undersized water meters. A 2002 Water Rate Study indicates that the District's expenses are exceeding revenues by approximately 15 percent. In 2002, the District increased all user rates by 14 percent, increasing revenues; but estimates losses of distributed water as a result of leaks in the service and main lines to be approximately 1.0 percent, \$68,713.60. The losses due to undersized and poorly operating water meters are estimated to be 3.1percent. There are numerous businesses with undersized meters that have been in business for several years, resulting in revenue losses of \$213,116.80, and as much as 808 AF of water per year. Replacement of the undersized meters will likely result in user initiated conservation efforts as well, to avoid significant increases in expense to the user.

The San Bernardino County Water District is currently forced to operate two wells that have tested positive for Perchlorate contamination greater than the State appointed action level of 4 parts per billion to ensure there is adequate water supplied to the consumers. The much needed Water Loss Analysis and System Rehabilitation project will reduce the amount of water losses, and will significantly reduce the District's reliance upon these two wells, while the District works to remove the contaminants from the water.

In addition, the District is confronted with the significant costs of treating five wells that have been contaminated with Perchlorate chemicals. The cost of treating these wells is \$1.5 million, which results in the District needing to appropriate capital funds to facilitate such repairs, and thereby significantly reducing or possibly postponing the rehabilitation of the antiquated, substandard infrastructure. Without the requested grant funds, the implementation of this project would likely be delayed for a minimum of two years; resulting in continued water and revenue losses, and increases the need for State Project Water.

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The proposed project was developed using the objectives of the District's Water Conservation Plan. The objectives of this Plan are as follows:

**Article 24. Water Conservation**

**Purpose.** The purpose of this Article is to provide water conservation measures in order to minimize the effect(s) of a water shortage of the citizens of, visitors to, and the economic well being of the communities we served and , by means of this Article, to adopt provisions that will significantly reduced the wasteful and inefficient consumption of water, thereby extending the available water resources required for the domestic, sanitation, and fire protection needs of the citizens of, and visitors to, the communities we serve while reducing the hardship of the District and the general public to the greatest extent possible.

**Section 2401. Goals**

- The conservation of water
- The efficient use and distribution of available water supplies.
- Adequate and sufficient potable water supply and availability for the greatest public benefit, with particular regard to human consumption, sanitation, and fire protection.
- Maintain high quality customer service.
- Ensure fiscal soundness.
- Protect environmental quality.

The population served by the District is primarily made up of minorities and falls under the definition of a disadvantaged community as established in the California Code of Regulations Section 63000.25. It is estimated that 4.1% of the District's pumped water is unaccounted for, and the District expenses continue to exceed revenues. The District has already raised water rates to all users 14%; however, this is still not enough to offset the expenses. This project will decrease water losses and increase accountability, and will provide an alternative to further increases in water rates.

**D-2 Outreach, Community Involvement, Support, Opposition**

West San Bernardino County Water District supplies at least 30% of the water used the City's of Rialto, Colton and Fontana, and up to 100% of the water used by the unincorporated areas of the County of San Bernardino. As a region, all of the agencies involved in supplying water throughout the Inland Empire Area are very supportive of each other, and have also formed task forces to address regional issues (i.e. the Inland Empire Perchlorate Task Force was formed under the California Calderon Agreement and at the direction of Senator Nell Soto to address the Perchlorate contamination of the wells of the Cities of Rialto and Colton, Fontana Water Company, and West San Bernardino County Water District). The Santa Ana Regional Water Quality Board, the City of Rialto, and Rialto Unified School District are all in support of this project (see Appendix 6 for Letters of Support).

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The District will also involve the communities it serves by providing access to information regarding the project on their web site and updates included in District's newsletter. Community meetings will also be held to discuss the benefits of participating in the proposed low-flush toilets, conservation program.

## ***Application Part E—Water Use Efficiency Improvements and Other Benefits***

### **E-1 Water Use Efficiency Improvements**

The proposed project would result in decreased costs and increase the water supply by reducing the amount of water lost due to leaking pipelines and encouraging conservation. The installation of properly sized water meters in the District's commercial areas will significantly reduce the amount of revenues lost due to unaccounted for water usage. It is estimated that the proposed project will increase the District's potable water distribution by 3%, and increase revenues by \$84,000, and reduce the District's annual acquisition of State Water by nearly 10 percent.

### **E-2 Other Project Benefits**

Over the past 3 years, the District has lost 3,000 AF of water due to water leaks and undersized meters. As a result of such losses and significant increases in energy costs, the District has raised its water rates by 14%. Even in the face of such an increase, the District expenses continue to exceed revenues. The District's recently completed an audit, and found this year the District will have a net loss of \$500,000. A significant factor contributing to this operating loss in the increasing costs to maintain service lines and mains that are plastic or corroded, and/or been in service significantly longer than the industry standard useful life of 20 years. Many of these pipelines are 40+ years old.

The implementation and completion of this project will present to the public, the District's commitment to ensuring they will receive safe and cost-effective water service. Additionally, the offering of a rebate program will expand the public's awareness of the importance of conserving water, and the District's commitment to helping users to conserve and reduce demands. Reduced demands reduce pumping costs, including electrical, thereby conserving another resource in short supply. These cost savings mean the District can maintain operational costs and rates, and these savings can be used to promote other water conservation programs.



## ***Application Part F – Economic Justification: Benefits to Costs***

### **F-1 Net Water Savings**

Based upon preliminary assessments, it is anticipated that these improvements will result in a reduction in annual water losses by 1,187 acre feet of water, and reduce annual revenue losses by \$413,670. The total cost of the proposed project, including the implementation of a rebate program, is \$1,700,000. The value of project benefits is \$4,136,695, resulting in an overall benefit to cost ratio of 2.79:1. The District proposes to hire an experienced consultant to complete the Water Loss Analysis Report.

During peak demands, the District, for the past 3 years, purchased an average of 2,400 acre feet of State Project Water each year. This savings would reduce the District's reliance on the State to supplement their water supply by nearly 10%. In addition, the benefit cost ratio clearly indicates the undeniable benefit of implementing the District's Water Loss Analysis and System Rehabilitation Program (see Table 5).

**Table 5: Benefit/Cost Ratio**

<b>Project Benefits (\$)(1)</b>		414,026
<b>Project Costs (\$)(2)</b>		148,234
<b>Benefit/Cost Ratio</b>		2.79

### **F-2 Project Budget and Budget Justification**

See Figure 1 under Section A-6, Table 1: Capital Cost Budget under Section A-11, and Quarterly budget under Appendix 7.

### **F-3 Economic Efficiency**

As a result of reduced or eliminated water losses, energy use and pumping costs will be greatly reduced in this economically challenged district. Water previously lost will then be available to expand system efficiency through the implementation of further improvements to the conveyance system, as well as allowing the District to continue to provide rebate programs to its consumers beyond the 3 years of this project. The increased efficiency will also promote future development within the communities it serves by ensuring future water supplies for such new developments, as is reflected in the following table (Table 4a).

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**Table 4: Water Supply Benefits  
(2002 Dollars)**

Net water savings (acre-feet/year) 1187

**4a. Avoided Costs of Current Supply Sources**

Sources of Supply	Cost of Water (\$/AF)	Annual Displaced Water Supply (AF)	Annual Avoided Costs (\$)
(a)	(b)	(c)	(d) (b x c)
Wells and Surface Water	348.8	1187	414025.6
			0
			0
			0
			0
<b>Total</b>			<b>414025.6</b>

**Table 4d. Total Water Supply Benefits**

(a) Annual Avoided Costs of Current Supply Sources from 4a, column (d)	414,026
(b) Annual Avoided Costs of Alternative Future Supply Sources from 4b, column (f)	0
(c) Annual Expected Water Sale Revenue from 4c, column (h)	0
(d) Total Net Annual Water Supply Benefit (\$) (a+b+c)	414,026

# APPENDIX 1

## Maps

# APPENDIX 2

## Resumes

# Anthony W. Araiza

## Work experience

1963 – Present    West San Bernardino County Water District    Rialto, CA  
**General Manager/Secretary**

## Education

**High School Diploma**    Eisenhower High School    Rialto, CA  
▪ Also attended the following schools:  
▪ San Bernardino Valley College  
▪ Mt. San Antonio College  
▪ California State University, San Bernardino

## Community activities

- City of Rialto Anti-Gang & Drug Task Force
- City of Rialto Downtown Redevelopment Citizens Committee
- City of Rialto Planning Commission – Past Chairman
- Friends of Rialto Police K9's – Board of Directors
- Rialto Noon Rotary – President 1994-95
- Rialto Unified School District Bond Oversight Committee

## Professional memberships

- Association of California Water Agencies
- Association of California Water Agencies/Joint Powers Authority
- American Water Works Association
- California Special Districts Association
- Chino Basin Watermaster
- Inland Empire Perchlorate Task Force
- Lytle Creek Water Conservation Association – Chairman
- Natural Water Resources Association
- Nationwide Public Projects Coalition
- Rialto Basin Association – Chairman
- San Bernardino County Special Districts Association
- Upper Santa Ana Water Resources Association – Chairman
- West End Development, Treatment, and Conservation, Joint Powers Authority

## Accreditations and licenses

- Grade III Distribution State of California
- Grade II Treatment Operator State of California

215 N. Clifford  
Rialto, CA 92376

Phone (909) 875-2545  
Fax (909) 875-7284  
E-mail [leon@wsbcwd.org](mailto:leon@wsbcwd.org)

# Leon Long

## Work experience

1971 – Present West San Bernardino County Water District Rialto, CA

### **Assistant General Manager**

- Other positions held include the following:
- Equipment Operator
- Customer Service
- Maintenance Worker
- Maintenance Supervisor
- Facilities Instructor
- Engineering/Construction Supervisor

## Education

Eisenhower High School Rialto, CA

### **GED**

- Also attended the following:
- San Bernardino Valley College, Engineering, Business Studies
- University of Riverside, Business Studies

## Accreditations and licenses

- Grade II Distribution State of California
- Grade III Water Treatment Operator State of California

## Community activities

- AWWA Member since 1985
- President, Vice-President and Program Coordinator of Inland Counties Water Association
- Director at Large for the Rialto Scholarship Association
- President of the Rialto Eyeopeners Rotary Club 1988-1989
- Citizen of Rialto for 40 years
- Several Fund Raisers

# Lon Tsai, P.E.

## Work experience

1998 – present West San Bernardino County Water District Rialto, CA

**Chief Engineer**

- Responsibilities include overseeing the planning, administration, design, and construction of the District's capital improvement program.

1997-1998 Engineering Resources of So. California San Bernardino, CA

**Principal Engineer**

- Performed the planning, design, contract administration and construction management of water and wastewater facilities, including water treatment and wastewater treatment plants.

1970-1997 Neste, Brundin & Stone, Inc. San Bernardino, CA

- In various positions, performed the design and construction of a variety of water and wastewater projects including, water supply wells, booster stations, transmission pipelines, storage reservoirs and water filtration plant; wastewater lift station, collection system and wastewater treatment facilities.

## Education

- *Master of Science in Civil Engineering*

South Dakota State University

- *Bachelor of Science in Hydraulic Engineering*

Taiwan Cheng Kung University

## Accreditations and licenses

- California State Board of Registration for professional Engineers and Land Surveyors. Civil Engineer License No. 24098.
- California Department of Health Services Water Treatment Operator. Certification No. 22537 – Grade T-4.

# APPENDIX 3

## Agency Authorization



# APPENDIX 4

## 2002 Water Rate Study

## **2002/2003 Water Rate Study**

**In June of 2002, the District Staff performed a water rate study. We were seeing our expenses outpace our revenues. On page 2 of Appendix 4, the summary showed that our existing water rate of \$.70/100c.f. would give us a short fall of nearly half a million dollars. An excerpt (page 5 & 6) from our 2001/2002 Audit Report indicates our operating income losses for 2002 are another half million (\$500,763.00) and the preceding 2 years totaled another three-hundred and forty thousand (\$340,000.00). It was determined by Staff that we could no longer absorb these losses because it was taking from other programs such as meter replacements or maintenance programs.**

**The Staff presented this data to our Board of Directors and after a long discussion of our water rate study the Board took action to increase our water rates by (14%) fourteen percent. It is estimated this will generate (\$905,000.00). This hopefully will cover the estimated revenue shortfall.**

## **2002/2003 Water Rate Study**

Existing Connection = 16,360 connection as of 6/30/02

Existing Water Rate = \$0.70 per unit (100 cubic feet)

Existing Monthly Service fee = \$6.98 per connection for ¾" meter

Existing Water Usage = Year 1999 - 6,508,547 unit  
Year 2000 - 7,379,881 unit  
Year 2001 - 7,478,734 unit  
Average = 7,122,000 unit/year

Operation Loss: Year 2000 = \$157,456  
Year 2001 = \$183,004  
Average = \$170,230/year

Power Cost Increased: = \$278,560/year

Projected Deficit: = \$448,790/year

Additional Revenue by Rate Increase:

### **Revenue Generated**

Rate Increased By	10%	12%	14%
Revenue from Water Rate Increase (\$0.70/unit X 7,122,000 unit x % rate hike)	\$0.77 / \$498,540	\$0.78 / \$569,760	\$0.80 / \$712,200
Revenue from monthly service fee increase (\$6.98/connection x 16,360 x 12 x % rate hike)	\$7.68 / \$137,424	\$7.82 / \$164,909	\$7.96 / \$192,394
TOTAL	\$635,964	\$734,669	\$904,594



# APPENDIX 5

## Meter Specifications Service Line Specifications

# **WEST SAN BERNARDINO COUNTY WATER DISTRICT**

## **SECTION 4.8 OF DETAILED TECHNICAL SPECIFICATIONS**

### **WATER SERVICE**

-  
-

#### **4.8.01 General**

-

**Water services shall be installed at the locations shown on the Plans and shall be at right angles to the centerline of the water main. Service lateral shall be installed a minimum of five (5) away horizontally and 1 foot above sewer lateral. No service laterals and meters shall be permitted in driveway areas.**

**All pipes, valves, service saddles, service laterals and fittings, corporation stops, angle meter valves and ball valves shall have a minimum working pressure rating of 160 pounds per square inch.**

**Water service connections shall be installed in conformance with Standard Drawings No. W-4, W-4A and W-5, and other applicable Standard Drawings.**

#### **4.8.02 Earthwork**

-

**The Contractor is referred to Section 4.1, “Earthwork”, of the Detailed Technical Specifications of these specifications. Service laterals shall be installed with sand bedding 3 inches minimum underneath pipe and 12 inches minimum above the service line**

#### **4.8.03 Service Laterals**

-

- a. **Materials - 1-inch service laterals shall be of seamless copper tubing, Type K, soft temper per ASTM B88. Service laterals, 1 ½ inches and 2 inches, shall be either Type K copper tubing or scheduled 40 galvanized steel pipe per ASTM A53. Service laterals, 3 inches and larger shall be scheduled 40 steel pipe painted with primer and wrapped with tape.**

- b. All copper tubing shall be of single length between corporation valves and angle meter valve. Pipe ends shall be suitable for pack joint fittings.
- c. Schedule 40 steel pipe and/or galvanized steel pipe shall be wrapped with two (2) layers of 10 mils thickness PVC pipe wrap and shall be Wonder No. 413 or equal.

#### **4.8-1**

##### **4.8.04 Angle Meter Valves (Inverted Key Type)**

-

**Angle meter valves 1" and smaller, shall be of brass construction with lockable wing, pack joint inlet and meter swivel nut outlet suitable for copper tubing and shall be Ford KV43, Muller P-14258 or approved equal. Angle meter valves, 1 1/2" and 2", shall be of brass construction with lockable wing, female iron pipe or pack joint inlet and meter flange outlet and shall be Ford FV13 or FV43, Muller P-14277 or approved equal.**

##### **4.8.05 Corporation Stops (Ball Valve Type)**

-

**Corporation stops shall be of brass construction with I.P.T. inlet and pack joint outlet suitable for copper tubing and shall be Ford FB1100, Muller P-25028 or approved equal.**

##### **4.8.06 Service Saddles**

-

**Service saddles shall be of iron construction with painted surface. Service saddles installed on AWWA C-900 PVC pipe line shall be equipped with double stainless steel straps, and shall be Ford FS202, Muller DB25, Romac Style 202S, Smith-Blair 317 or approved equal. Service saddles installed on ductile iron pipe and steel pipe water line shall have double alloy steel strap and shall be Ford Style F202, Muller DB2A, Romac Style 202, Smith Blair 313 or approved equal.**

##### **4.8.07 Meter Box**

-

**Meter box for 3/4" and 1" meter shall be a Carson #3 Plastic or #37S Brooks Concrete Box. For 1-1/2" and 2" meters, a Carson #6 Plastic Box or #66 Brooks Concrete Box shall be furnished. Meter box for meters larger**

than 2 ½” shall be of precast concrete vault and shall be specified on plans. Concrete box shall be used in traffic area.

#### 4.8.08 Ball Valves on Customers Line

Ball Valves shall be of brass construction with either meter swivel nut or meter flange inlet and female iron pipe thread outlet and shall be Ford B13 or BF-13 or approved equal. All ball valves shall be supplied with high level handle, similar to either Ford HH-34, HH-67 or approved equal.

#### 4.8.09 Water Service Surface Markers

-

It is the District’s Policy that the Contractor installs the water service and meter boxes at the time of construction unless otherwise approved by the District. If other procedures are approved, the Contractor shall reference each water service connection in the field with a surface marker. The surface marker shall be a No. 4 re-bar hooked on both ends from the angle meter stop to 12-inches minimum above grade. The upper portion of the re-bar shall be painted blue. The Contractor shall also chisel a “W” mark on top of the concrete curb.



# APPENDIX 6

## Letters of Support

# APPENDIX 7

## Quarterly Budget

